

REMARKS

Overview

Claims 7-10, 12, 13, 15 and 17-26 are pending in this application. Claims 7, 13, 15, 17, 25 and 26 have been amended. The present response is an earnest effort to place all claims in proper form for immediate allowance. Reconsideration and passage to issuance is therefore respectfully requested.

Claims Rejections

Claim 7 is rejected under 35 U.S.C. § 102(b) as being anticipated by Tatsumi (US 5,317,341). Claims 7-10, 12-13, 15 and 17-26 are rejected under 35 U.S.C. § 103 as being obvious over the primary reference Yamada in combination with one of the three secondary references, Szupillo, Copetti, or Sato, and further in view of Tatsumi. Applicant respectfully traverses these rejections, and requests reconsideration of the claims.

A. The § 102 Rejection of Claim 7 Based Upon Tatsumi is Improper.

1) The Law of Anticipation

For a § 102 rejection, a single reference "must disclose each and every element of a claimed invention." Tate Engineering, Inc. v. United States, 477 F.2d 1336, 1342 (Ct. Cl. 1973). Furthermore, each element of the claim and cited reference "must function in substantially the same way to produce substantially the same result." Id. The rejection under 35 U.S.C. § 102 is only proper "when the claimed subject matter is identically disclosed or described in the prior art." Application of Marshall, 579 F.2d 301, 304 (CCPA 1978). Prior art that is only "substantially the same as the claimed invention" likewise cannot show anticipation. Jamesbury Corp. vs. Litton Industries Products, Inc., 756 F.2d 1556, 1560 (Fed. Cir. 1995).

Applying these legal standards, it is virtually impossible for a product that is not the same type of product as the claimed invention to legally anticipate the invention. As explained by the Federal Circuit, "there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." Scripps Clinic & Research Foundation vs. Genentech, Inc., 927 F.2d 1565, 1576 (Fed. Cir 1991), (*emphasis added*). "Any degree of physical difference between the patented product and the prior art, no matter how slight, defeats the claim of anticipation." American Permahedge, Inc. v. Barcana, Inc., 857 F.Supp. 307, 317 (SDNY 1994), *affirmed*, 105 F.3d 1441 (Fed. Cir. 1997).

For anticipation, every element must be present in the prior art reference, "arranged as in the claim." Richardson v. Suzuki Motor Co., Ltd., 868 F.2d 1226, 1236 (Fed. Cir. 1989). The identical invention must be shown in its complete detail as contained in the claim. Id.

2) Tatsumi is Not Identical to Claim 7

Claim 7 is directed towards a thin film chip resistor. Tatsumi is directed towards a thermal print head for recording instruments, such a printers. Since a chip resistor is not identical to a print head, this difference alone is sufficient to preclude Tatsumi from anticipating claim 7, as a matter of law.

The Examiner suggests on page 2 of the Office Action that Tatsumi shows a conventional thin film chip resistor 100 in Figure 6a-6c for such ribbon 8. However, Tatsumi clearly describes Figure 6 as a thermal head (see col. 3, line 40). Element 100 is described as a printing portion of the thermal head (see col. 1, lines 36-38). The ribbon 8 is a thermal transfer ribbon for printing (see col. 1, lines 29-31). Applicant is unable to find any description in Tatsumi of a thin film chip resistor. Therefore, the Examiner's conclusion that Tatsumi shows a thin film chip resistor is erroneous.

Claim 7 further requires that the outer moisture barrier of tantalum pentoxide directly overlays and contacts the metal thin film resistive layer "between the terminations and without covering the terminations." Figure 2 of this application shows the barrier 22 between the terminations 18, without covering the terminations. Claim 7 has been further amended to require that the moisture barrier is formed by depositing the tantalum pentoxide "only on the metal thin film resistive layer without covering the terminations". In Tatsumi, the protective layer 16 is applied over the entire surface of the thermal head, including over the electrodes 14, 15 (see col. 4, lines 11-14). The prior art thermal head shown in Figures 6a-6c of Tatsumi also includes a protective film 6 which presumably is applied in the same manner as the protective film 16 so as to cover the entire thermal head. Since the protective layer of Tatsumi encloses the electrodes or terminations, Tatsumi does not meet the limitation of claim 7 that the outer moisture barrier does not cover the terminations, or the requirement that the moisture barrier is formed by depositing the tantalum pentoxide on the metal thin film resistive layer without covering the terminations. Therefore, claim 7 further distinguishes over Tatsumi.

In view of the differences between claim 7 and Tatsumi discussed above, the anticipation rejection of claim 7 based upon Tatsumi must be withdrawn.

B. The Obviousness Rejections of the Claims are Improper.

1) Tatsumi is Non-analogous Art

The test for non-analogous art is (1) whether the reference is within the field of the inventor's endeavor, and if not, (2) whether the reference is reasonably pertinent to the particular problem to which the inventor was involved. The field of the present endeavor is thin film resistors, as described in the specification at page 1, lines 2-4. In comparison, Tatsumi is

directed towards thermal print heads for recording instruments. Since the fields of endeavor are different, the first prong of the non-analogous art test is not satisfied.

Under the second prong of the non-analogous art test, the problem addressed in the present invention is a moisture barrier for a resistor which prevents degradation of the resistive film element, as described in the specification at page 1, lines 5-11. The problem addressed by Tatsumi is chipping of the protective film from cutting which causes corrosion of the electrode and conductivity failure, as described at column 1, lines 53-64. The resistors of the present invention are not cut, and accordingly, are not concerned with the chipping problem of Tatsumi. Therefore, Tatsumi fails the second prong of the non-analogous art test. Accordingly, since Tatsumi must be withdrawn as a prior art reference, the § 103 rejections of the claims must also be withdrawn.

2) There is No Clear and Particular Objective Teaching to Combine Any of the Secondary References With Yamada.

As the Federal Circuit has explained,

"Under § 103, teachings of references can be combined only if there is some suggestion or incentive to do so The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification."

In re Fritch, 972 F.2d 1260, 1266 (Fed. Cir. 1992) (*emphasis added*). More particularly, the Federal Circuit has emphasized that for a § 103 obviousness rejection based upon a combination of patents, there must be "some objective teaching" leading of the combination. Fritch, 972 at 1265. As further explained by the Federal Circuit, this showing must be "clear and particular." In re Dembiczak, 175 F.3d 994, 999 (Fed. Cir. 1999).

Here, the Examiner has provided no clear and particular objective teaching for combining Yamada with any of the references Szupillo, Copetti, Sato or Tatsumi. The Examiner's alleged motivation is that "one known prior art dielectric can be replaced for another since they are both dielectrics and are used as barriers, and are compatible with the same materials used by Yamada, nichrome." In other words, the Examiner seems to be saying that it is obvious to substitute one dielectric for another dielectric. However, the mere knowledge of equivalent dielectrics does not provide a clear and particular objective motivation for substituting one dielectric for another.

A simple analogy which shows the defect in such reasoning is a ball team which has players who start the game and players who sit on the bench and later come into the game as substitutes for the starting players. The coach knows that the players sitting on the bench can be substituted at any time for any of the starting players. However, the mere knowledge that the players can be substituted for one another does not create the motivation to make the substitution. There must be some reason or motivation for substituting players.

Similarly, the knowledge that there may be dielectrics that can be substituted for one another does not provide the motivation to make such a substitution. The Examiner has failed to cite any reason for substituting any of the dielectrics from Szupillo, Copetti, Sato or Tatsumi for the dielectric of Yamada. Absent such a teaching or motivation, the obviousness rejection is fatally defective, and must be withdrawn.

3) The References, Alone or in Combination, Do Not Meet the Claim Limitations.

Each of the independent claims require a tantalum pentoxide outer moisture barrier in a thin film chip resistor. None of the references disclose such an outer barrier in a chip resistor. Furthermore, each of the independent claims 7, 13, 15, 17, 25 and 26 have been amended to

provide that the outer moisture barrier resides between the terminations without covering or enclosing the terminations. As discussed above with respect to the § 102 rejection of claim 7, Tatsumi applies the protective film to the entire surface of the thermal head, such that the terminations are covered and enclosed by the protective film. Thus, Tatsumi teaches away from the limitation of the independent claims that the moisture barrier does not cover or enclose the terminations.

While Applicant does not have a complete translation of the Sato Japanese patent, Figure 1 of Sato appears similar to Tatsumi in that the resistive layer is covered by the alleged moisture barrier. The remaining references also fail to disclose an outer moisture barrier which does not cover the terminations. Therefore, the obviousness rejections of the claims should be withdrawn.

Furthermore, independent claims 7, 13, 15, and 17 requires that the chip resistor be resistant to moisture "without use of a screen-printed moisture barrier". The primary Yamada reference utilizes a protective layer 54 which is screen printed. Therefore, Yamada teaches away from this limitation of claims 7, 13, 15 and 17.

The independent claims 7, 13, 15, 25 and 26 each require that the moisture barrier is formed by depositing the layer of tantalum pentoxide onto the resistive layer or onto the passivation layer. Yamada does not form a moisture barrier by such a depositing step, but rather utilizes a screen print. The Examiner provides no motivation for substituting a different process for applying the moisture barrier from any of the secondary references in place of the screen printing process of Yamada. This is another reason that the obviousness rejections should be withdrawn.

Each of independent claims 7, 13, 17 and 25 requires an outer moisture barrier to contact or attach to the resistive layer (nickel-chromium alloy in claim 13). Contrary to the Examiner's

assertion, Yamada does not disclose this limitation. In Yamada Figure 10, an inner protective layer 4 contacts the resistive layer 3. An outer protective layer 6 contacts the inner protective layer 4. The only way for Yamada to meet these claim limitations is to eliminate the outer protective layer 6, such that the protective layer 4 becomes an outer layer. However, it is improper to modify a prior art reference in a manner inconsistent with its teachings. In re Gorden, 733 F.2d 900, 902 (Fed. Cir. 1984). None of the secondary references overcome this deficiency of Yamada. Therefore, these claims distinguish over the cited references.

Independent claims 7, 13, 15, 25 and 26 also provide that the moisture barrier is not formed by oxidation. Szupillo relies upon oxidation to produce tantalum pentoxide, contrary to the limitations of these claims. Thus, even if Szupillo is combined with Yamada, the combination fails to meet the limitations of these claims.

The Examiner asserts that paragraphs 63 and 69 of Copetti disclose the protective moisture barrier for resistors. However, Copetti includes a contact hole 6 extending through the entire module, thereby defeating any moisture barrier function. Thus, contrary to the Examiner's assertion, Copetti does not disclose a moisture barrier of tantalum pentoxide.

The Copetti patent discloses using tantalum pentoxide is one of a number of dielectrics because of its relative dielectric constant (col. 2, lines 60-68). Copetti does not select a tantalum pentoxide for use as a moisture barrier, but simply as a dielectric. Furthermore, Copetti uses a separate protective layer to protect the adjacent layers from a chemical load and corrosion by moisture (col. 3, lines 1-4), thereby indicating that Copetti does not foresee using tantalum pentoxide as a moisture barrier. Thus, Copetti actually teaches away from the use of the tantalum pentoxide as a moisture barrier as Copetti uses a separate moisture barrier, and hence Copetti can provide no proper motivation to combine with Yamada to provide a moisture barrier.

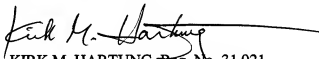
Conclusion

Thus, for each and every reason discussed above, the claims distinguish over the cited references so as to be allowable. Accordingly, Applicant respectfully requests that a Notice of Allowance be issued.

No fees or extensions of time are believed to be due. However, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



KIRK M. HARTUNG, Reg. No. 31,021
McKEE, VOORHEES & SEASE, P.L.C.
801 Grand Avenue, Suite 3200
Des Moines, Iowa 50309-2721
Phone No: (515) 288-3667
Fax No: (515) 288-1338
CUSTOMER NO: 22885

Attorneys of Record

- bjh -